

TITLE 17: CONSERVATION
CHAPTER I: DEPARTMENT OF NATURAL RESOURCES
SUBCHAPTER h: WATER RESOURCES

PART 3702
CONSTRUCTION AND MAINTENANCE OF DAMS

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AUTHORITY: Implementing and authorized by Sections 23 and 23a of the Rivers, Lakes and Streams Act [615 ILCS].

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Section 3702.10 Purpose

- a) The purpose of this Part is to provide information on the procedures that the Illinois Department of Natural Resources (Department), Office of Water Resources (OWR) will follow in its dam safety inspection and regulation program. This Part covers permit and other procedures for construction and maintenance of new dams and for necessary modification and maintenance of existing dams.
- b) The establishment of rigid criteria or rigid standards for new and existing dams is not intended. This Part sets forth minimum standards which are consistent with current engineering practices. Variations from these standards may be necessary because of specific conditions at individual dams.
- c) Adherence to this Part does not guarantee the safety of a dam or relieve the owner of liability in case of a dam failure. The OWR does not undertake to insure or certify the adequacy of any dam structure or appurtenance.

(Source: Amended at 11 Ill. Reg. 1941, effective January 13, 1987)

Section 3702.20 Definitions

"As-Built Plans" A set of plans marked to show all deviations from the permitted construction plans.

"Construct" To erect, build, emplace, or remove a structure capable of storing or diverting water.

"Corps Guidelines" The U.S. Army Corps of Engineers' "Recommended Guidelines for Safety Inspection of Dams" which is Appendix D of ER 1110-2-106, National Program for Inspection of Non-Federal Dams, 33 CFR 222, as of July 1, 1983, not including any later amendments or editions.

"Dam" All obstructions, walls, embankments, or barriers, together with their abutments and appurtenant works, if any, constructed for the purpose of storing or diverting water or creating a pool. Not included are underground or elevated tanks to store water.

"Dam Abutment" The intersection of the left or right side of the dam embankment with natural ground surface.

"Dam Height" Height of the dam in feet as measured from the natural bed of the stream or water course at the downstream dam slope toe of the barrier to the top of the embankment or barrier.

"Department" The Illinois Department of Natural Resources.

"Director" The Director of the Illinois Department of Natural Resources or his/her designated representative.

"Drawdown" The magnitude of the change in surface elevation of a lake or body of water as a result of the withdrawal of water therefrom.

"Engineer" A structural and/or professional engineer registered in The State of Illinois, under the Professional Engineering Practice Act [225 ILCS 325] and the Structural Engineers Act [225 ILCS 340], with expertise in the investigation, design, construction, and operation of dams.

"Flood Plain" The land adjacent to a body of water which has been or may hereafter be covered by flood water.

"Freeboard" The difference in elevation between the top of dam and the maximum water surface that would be

attained during the passage of the selected flood occurrence.

"Impounding Capacity" The total volume of water, expressed in acre-feet, that is stored in the reservoir above the natural bed of the stream or watercourse when the water surface is at the top of the embankment or barrier.

"In Conformance With All Applicable Standards Existing At The Time Of Its Construction" Built in accordance with an Illinois Department of Natural Resources, Office of Water Resources (or its predecessors) permit or having written verification from the Department of a permit not being required.

"In Good Repair" Maintained so as to be in sound condition, free from defect or damage which may hinder the structure's functions as designed.

"Major Modification" Major structural and/or hydraulic modification which involves extensive reconstruction of a dam and/or its appurtenances.

"Normal Pool" The water surface elevation corresponding to the elevation of the principal spillway crest in the case of an ungated spillway, or the top of the spillway gates in a closed position in the case of a gated principal spillway. A dam may have more than one normal pool if operating procedures require varying water surface elevations.

"OWR" The Illinois Department of Natural Resources, Office of Water Resources.

"PMF" The probable maximum flood. The flood that may be expected from the most severe combination of critical meteorologic and hydrologic conditions that are reasonably possible in a region.

"Qualified Personnel" Federal or State personnel having the same experience as an engineer.

"Rural Areas" Areas of the State not classified as Urban Areas.

"Selected Flood Occurrence" That flood occurrence which corresponds to the recommended total spillway design flood for the particular classification of dam as defined in this Part.

"This Part" The Illinois Department of Natural Resources' Rules for "Construction and Maintenance of Dams" (17 Ill. Adm. Code 3702).

"Urban Areas" Areas of the State where residential, commercial or industrial development currently exists or, based upon adopted or proposed land use plans or controls, is expected to occur within ten years of the application date. In determining urban areas, the expertise of local officials, regional or local planning commissions, city and county planners, and private development planners, as well as all available mapping may be utilized. Areas with isolated or widely scattered buildings will generally not be classified urban areas.

"Urban Development" The residential, commercial or industrial use of flood plain areas, immediately upstream and downstream of a dam, excluding isolated farm buildings.

"Watershed" Total land area above a given point (e.g. a dam) on a stream or waterway that contributes runoff to that point.

"Wave Generation Height" The vertical distance between a crest and the preceding trough of a wave caused by wind blowing over a water surface or caused by mechanical methods such as waves generated by motor boats.

(Source: Amended at 11 Ill. Reg. 1941, effective January 13, 1987)

Section 3702.30 Applicability

a) Classification

- 1) Dams will be categorized in one of three classes, according to the degree of threat to life and property in the event of a dam failure. The three classes of dams are:

- A) Class I - Dams located where failure has a high probability for causing loss of life or substantial economic loss in excess of that which would naturally occur downstream of the dam if the dam had not failed. A dam has a high probability for causing loss of life or substantial economic loss if it is located where its failure may cause additional damage to such structures as a home, a hospital, a nursing home, a highly traveled roadway, a shopping center, or similar type facilities where people are normally present downstream of the dam. This is similar to U.S. Army Corps of Engineers HIGH HAZARD POTENTIAL category as defined in the Corps Guidelines, and the U.S. Soil Conservation Service Class (c) dams as defined in Soil Conservation Service Technical Release No. 60.
- B) Class II - Dams located where failure has a moderate probability for causing loss of life or may cause substantial economic loss in excess of that which would naturally occur downstream of the dam if the dam had not failed. A dam has a moderate probability for causing loss of life or substantial economic loss if it is located where its failure may cause additional damage to such structures as to a water treatment facility, a sewage treatment facility, a power substation, a city park, a U.S. Route or Illinois Route highway, a railroad or similar type facilities where people are downstream of the dam for only a portion of the day or on a more sporadic basis. This is similar to U.S. Army Corps of Engineers SIGNIFICANT HAZARD POTENTIAL category and the U.S. Soil Conservation Service Class (b) dams.
- C) Class III - Dams located where failure has low probability for causing loss of life, where there are no permanent structures for human

habitation, or minimal economic loss in excess of that which would naturally occur downstream of the dam if the dam had not failed. A dam has a low probability for causing loss of life or minimal economic loss if it is located where its failure may cause additional damage to agricultural fields, timber areas, township roads or similar type areas where people seldom are present and where there are few structures. This corresponds to U.S. Army Corps of Engineers LOW HAZARD POTENTIAL category and U.S. Soil Conservation Service Class (a) dams.

- 2) Dams will be categorized in one of three size classifications. Such size classifications shall be based on dam height and impounding capacity. If either the height or impounding capacity meets the minimum requirement for the larger size, the dam will be classified in the larger size category.

<u>CLASSIFICATION</u>	<u>IMPOUNDING CAPACITY</u> <u>(ACRE-FEET)</u>	<u>DAM HEIGHT</u> <u>(FEET)</u>
Small	<1,000	<40
Intermediate	>1,000 to <50,000	≥40 to <100
Large	≥50,000	≥100

b) New Dams

1) Class I and II Dams

The owner of a proposed Class I or II dam shall obtain a OWR permit prior to the start of construction. The owner must do all construction and maintenance of the dam in accordance with this Part governing such Class I or II dam.

2) Class III Dams

A) The owner of a proposed Class III dam shall obtain a OWR permit prior to the start of construction if the dam meets any of the following criteria:

- i) the drainage area of the proposed dam is 6400 acres or more in a Rural Area or 640 acres or more in an Urban Area, or

ii) the dam is 25 feet or more in height provided that the impounding capacity is greater than 15 acre-feet, or

iii) the dam has an impounding capacity of 50 acre-feet or more provided that the dam height is greater than 6 feet.

B) If a permit is required for the Class III dam under any of these criteria, then the owner must do all construction and maintenance of the dam in accordance with this Part governing Class III dams.

c) Existing Dams

The owner of a dam that was permitted and built in compliance with a OWR permit before September 2, 1980, and that is currently in good repair shall not be required, except in compliance with Sections 3702.150 or 3702.190, to make changes in the design, structure, or construction of such dam. The owner of a dam that was permitted and built before September 2, 1980, but is not in accordance with the OWR permit or is not in good repair, shall be required to meet all current standards for existing dams. The owner of a dam built after September 2, 1980, shall be required to meet all standards for proposed dams existing at the time of its construction. Operation, maintenance, inspection and financial responsibility standards must be complied with at all dams.

1) Class I and II Dams

A) OWR has developed an inventory of dams in Illinois. OWR and federal agencies have conducted and are conducting inspections of existing dams having a potential for loss of life or property damage in case of a dam failure. As inspection reports are completed, OWR will furnish in writing to the owner of the dam a detailed and specific list of defects discovered in the course of the inspection of the dam, including the specific nature of any inadequacies of the capacity of the spillway system and any indications of seepage, erosion or other evidence of structural deficiency in the dam or spillway; together with a statement of the applicable standards found in 17 Ill. Adm. Code 3702 which if complied with by the owner of the dam

will put the dam into compliance with this Part.

- B) If an inspection by OWR or in which OWR concurs finds that a dam is in an unsafe condition, OWR will notify the appropriate officials of the affected city or county, the State's Attorney of the county in which the dam is located, and the Illinois Emergency Management Agency (IEMA); and will assist IEMA in any emergency actions deemed necessary by that agency.
- C) OWR will notify the dam owner whose dam has been inspected if the owner must obtain a permit or amendment to an existing permit for the dam.
- D) If an existing Class I or II dam has been inspected and found to have serious deficiencies requiring major modifications, then within 90 days after receipt of notice from OWR that a permit or amendment to an existing permit is required under this Part, the owner of a Class I or II dam must provide written assurance to OWR of the following: the owner's intention to rectify the deficiencies noted, the date which the owner will submit a completed permit application, the time frame for initiating and completing the appropriate remedial measures, and the methods and designs to be used for the remedial measures.
- E) If an existing Class I or II dam has been inspected and found to have no serious deficiencies requiring major modifications, OWR will notify the owner of the dam that he must submit within 90 days a permit application including the following if such has not been previously provided to OWR:
 - i) an Operating Plan (Section 3702.40 (b)(4));
 - ii) a Maintenance Plan (Section 3702.40 (b)(5));
 - iii) a Financial Responsibility Statement (Section 3702.40 (b)(6)); and

iv) Right of Access Statement (Section 3702.40(b)(7)(A)).

F) An owner initiating major modifications to an existing Class I or Class II dam must obtain a new permit or amendment to an existing permit prior to the initiation of the modifications.

2) Class III Dams

A) Using the inventory of dams or other similar information, OWR, over a period of time, upon receipt of a complaint or upon its own investigation, may contact owners of those existing Class III dams which

i) have a drainage area of 6400 acres or more in a Rural Area or 640 acres or more in an Urban Area, or

ii) are 25 feet or more in height, provided that the impounding capacity is greater than 15 acre-feet, or

iii) have an impounding capacity of 50 acre-feet or more provided that the dam height is greater than 6 feet.

B) OWR will inform the owners of such dams that they must submit to OWR a maintenance program and a statement indicating actions to be taken to remedy the noted deficiencies.

C) If an inspection by OWR or in which OWR concurs finds that a dam is in an unsafe condition, OWR will notify the appropriate officials of the affected city or county, the State's Attorney of the county in which the dam is located, and IEMA.

D) Owners of existing Class III dams in locations where there is potential for downstream urban development, which could cause a change in dam classification in the foreseeable future, when so notified by OWR, shall be required to report annually the existing land uses downstream of the dam. Extent of downstream land use to be reported is dependent upon factors such as slope and width of flood plain and density and intensity of downstream development. Extent downstream will not

exceed 2 miles unless otherwise indicated by OWR. The owner may provide information indicating that an extent downstream which is shorter than 2 miles is appropriate. The width of flood plain shall be the width of the area inundated by the 100-year flood.

- E) Owners of Class III dams desiring to make major modifications to their dams shall obtain a OWR permit or an amendment to an existing OWR permit for the work prior to the initiation of the modifications.

d) Designation by OWR of Dam Classification

Before assigning or changing the dam classification for a new or existing dam, OWR shall give notice and opportunity for hearing pursuant to Section 3702.170 to the applicant or existing dam owner and other interested persons of such action.

1) Initial Assignment of Dam Classification

A) New Dams

The classification of new dams will be based upon information available to OWR. Such information includes, but is not limited to, U.S.G.S. quadrangle maps of the downstream area, the preliminary report and support data from the owner's engineer, known elevations of structures downstream of the proposed dam, information from the public, and previous study data. Such information is available from in-house data and data supplied by the owner's engineer, the public, federal or state agencies. The owner of the proposed dam shall submit information to establish the degree of threat to life and property damage in the event of a dam failure.

B) Existing Dams

- i) The classification of existing dams which have been inspected by the U.S. Army Corps of Engineers, other federal agencies, or OWR will be based upon the agency's inspection report.
- ii) The classification of existing dams which have not been inspected by federal agency

or OWR but which have had major modifications proposed by the dam owner will be processed as new dams in accordance with Section 3702.30(d)(1)(A).

2) Change in Dam Classification

Upon receipt and verification of information indicating that significant change in the degree of threat to life or property from a dam failure has occurred since the dam's original classification, the classification of that dam shall be changed to reflect the new hazard potential. Upon reclassification, the dam owner shall be subject to the applicable dam safety requirements for the current classification (Section 3702.30(c)).

e) Removal of Dams

The owner of a Class I, II or III dam as defined in this Part, who wishes to remove his dam, shall obtain, prior to the initiation of the dam removal, a OWR permit to remove the dam in accordance with Section 3702.50 governing the removal of dams.

(Source: Amended at 11 Ill. Reg. 1941, effective January 13, 1987)

Section 3702.40 Requirements for Approval of Permits for Construction of New Dams and Major Modifications of Existing Dams

- a) The following are OWR requirements which must be met in order to obtain a permit for construction of a new dam or major modification of an existing dam. Applicants are encouraged to submit to OWR a preliminary report for approval of concept prior to completion of the permit application form. The preliminary and all subsequent plans and reports shall be prepared under the direction of an engineer or other qualified personnel. The engineer or qualified personnel may be assisted by other professional personnel applying the disciplines of Hydrologic engineering, hydraulic engineering, soil mechanics, structural engineering, or engineering geology.
- b) OWR staff will be available for consultation prior to initiation of design studies, and at any time during the development of the permit application if questions should arise.

- 1) Structural and Geotechnical Design Requirements

The basis for OWR review and approval of the structural and geotechnical design requirements of Class I, II and III dams is the Corps Guidelines subject to modification as indicated in this Part. The criteria for structural and geotechnical design contained in the Corps Guidelines are minimum criteria. Variations from the criteria may be required or allowed by OWR for special physical conditions at the proposed site as necessary or appropriate to meet the interest of the overall structural and geotechnical requirements of this Part. Technical publications, other than the Corps Guidelines, may be used by OWR to assure the use of current and applicable data for the structural and geotechnical review of the dam design.

- 2) Hydrologic and Hydraulic Design Requirements

The basis for OWR review and approval of the hydrologic and hydraulic design requirements for Class I, II and III dams is the Corps Guidelines, subject to modifications as indicted herein. Technical publications other than the Corps Guidelines may be used to assure the use of current and applicable data for the hydrologic and hydraulic review of dam design.

A) Proposed Dams

The following minimum spillway design floods shall be used for proposed structures:

i) Principal Spillway Design Flood

<u>CLASSIFICATION</u>	<u>SIZE</u>	<u>PRINCIPAL SPILLWAY DESIGN FLOOD</u>
Class I	All	100-yr.
Class II	All	50-yr.
Class III	All	25-yr.

ii) Total Spillway Design Flood

<u>CLASSIFICATION</u>	<u>SIZE</u>	<u>TOTAL SPILLWAY DESIGN FLOOD</u>
Class I	Small	0.5 PMF
	Intermediate	1.0 PMF
	Large	1.0 PMF
Class II	Small	100-yr.
	Intermediate	0.5 PMF
	Large	1.0 PMF
Class III	Small	100-yr. *
	Intermediate	100-yr.
	Large	0.5PMF

*For proposed Class III dams where the dam height multiplied by the impounding capacity is less than or equal to 300, no specific total spillway capacity is required.

iii) For all proposed Class II or III dams, a determination of alternatives for increasing the total spillway capacity to accommodate the PMF shall also be submitted to OWR. The initial dam design shall provide for the capability of increasing the spillway capacity. Future downstream land use, land use controls, and growth projections will be considered in the review of the spillway capacity design.

B) Existing Dams

The minimum spillway design flood for modifications to existing dams built after September 2, 1980 shall be the same as the criteria for proposed dams. The minimum spillway design flood for modifications to existing dams that were constructed and in service on or before September 2, 1980, are as follows:

i) Principal Spillway Design Flood

<u>CLASSIFICATION</u>	<u>SIZE</u>	<u>PRINCIPAL SPILLWAY DESIGN FLOOD</u>
Class I	All	100-yr.
Class II	All	50-yr.
Class III	All	No specific requirement

ii) Total Spillway Design Flood

<u>CLASSIFICATION</u>	<u>SIZE</u>	<u>TOTAL SPILLWAY DESIGN FLOOD</u>
Class I	Small	0.3 PMF
	Intermediate	0.6 PMF
	Large	0.6 PMF
Class II	Small	100-yr.
	Intermediate	0.3 PMF
	Large	0.6 PMF
Class III	Small	100 yr. *
	Intermediate	100-yr.
	Large	0.3 PMF

*For modifications to existing Class III dams where the height multiplied by impounding capacity is less than or equal to 300, no specific total spillway capacity is required.

iii) The Department may approve total spillway design capacities for existing dams other than the spillway design floods listed above. A total spillway design capacity less than the 100-yr. flood will only be

allowed for small size, Class III structures with dam height multiplied by impounding capacity less than or equal to 300. Any submittal for variation from the above-listed spillway design flood must include a detailed hydraulic risk assessment that shows that additional spillway capacity will not provide a decrease in potential loss of life or property damage or a detailed economic risk assessment that shows that the chosen spillway design alternative provides the minimum rehabilitation costs plus damage losses; a detailed early warning and emergency evacuation plan coordinated with the local IEMA; and a list (with mailing addresses) of all persons living within the dam breach wave inundation area.

- iv) All hearings regarding variation from the above-listed spillway design criteria shall be in accordance with Section 3702.170 of this Part.
- C) For Class I and II dams, a dam breach wave analysis for downstream impacts from failure during the total spillway design flood and impoundment initially at normal pool shall be required for:
 - i) a nearly instantaneous total failure and
 - ii) should the applicant so desire, a failure to the degree and timing believed reasonable by the applicant.
- D) Dewatering Capabilities
 - i) All new Class I and II dams, all new Class III dams unless exempted by OWR for functional reasons, and existing Class I and II dams requiring major modifications shall have a capability for dewatering the reservoir within a reasonable period of time. In determining a reasonable time period, OWR shall consider the damage potential posed by possible failure, risk and nature of potential failure, purpose of the dam and reservoir, capability and stability of

available drainage courses to convey the waters released in the event of an emergency dewatering, and influence of rapid drawdown on stability of the dam. Although each permit must be considered based on its individual circumstances, in general, a reasonable time to dewater 50% of the normal pool storage volume is 7 days for Class I dams, 14 days for Class II dams and 30 days for Class III dams.

- ii) No dewatering capability shall be required for any existing Class III dam or for any existing Class I or II dam which OWR determines to require no major modifications thereto under this Part.
- E) Specific requirements for minimum freeboard allowances are not appropriate because of the many factors involved in such determinations. The applicant must assess the factors affecting the individual project and develop the appropriate minimum freeboard allowance. Many projects are reasonably safe without freeboard allowance because they are designed for overtopping, or because other factors minimize possible overtopping. Conversely, freeboard allowances of several feet may be necessary to provide a safe condition for some dams. Factors that should be considered include the duration of high water levels in the reservoir during the design flood; the effective wind fetch and reservoir depth available to support wave generation; the probability of high wind speed occurring from a critical direction; the potential wave runup on the dam based on roughness and slope; and the ability of the dam to resist erosion from overtopping waves.
- F) The applicant must provide stilling basins or other appropriate structures or devices capable of dissipating the energy created at the outlet of the principal spillway and at dewatering outlets for all flows.
- 3) Erosion Protection Requirements
- A) As a minimum the applicant shall adequately protect by structural or nonstructural means the upstream face of earth embankment dams

from an elevation below normal pool of two feet or 0.50 times the anticipated wave height (if greater than 2.0 feet) up to the minimum freeboard elevation. In addition, if normal pool water surface varies, the upstream face shall be protected within the range of variation.

- B) The applicant shall vegetate or otherwise protect from erosion the downstream face and top of earth embankment dams. The applicant should design earth embankment dams to provide a dam section which can be easily maintained.
- C) The applicant shall provide riprap or other appropriate protection as necessary at dam abutments, dam slope toes (the line of the dam embankment slopes where it intersects the natural ground at the upstream or downstream edge), spillways, stilling basins, and at other locations which, if left unprotected, could lead to damage to, or failure of the dam.
- D) If the spillway design of the dam requires that an earth emergency spillway pass any portion of the 100-year flood, the applicant shall protect the earth emergency spillway against erosion consistent with the dam classification and physical characteristics of the dam site. The applicant must construct all earth emergency spillways on in situ material or on well compacted cohesive materials that will be stable during design flows.
- E) The applicant shall submit plans for control of erosion and water pollution during the anticipated construction or major modifications, including plans for adequate measures to limit the erosion of the soil from exposed slopes after completion of construction. Such plans shall indicate that adequate control measures will be taken during construction to protect the quality of stream flow below the project site, and during the estimated time for filling.

4) Operating Requirements

An applicant for a Class I or II dam shall submit

an operational plan specifying the method and schedule for the operation of the dam and the routine operating procedures to keep the dam in good working order, including an emergency warning plan. The emergency warning plan must outline the procedures to be followed during major storm events or other emergency situations. Under this plan, a person designated by the dam owner would monitor dam conditions, and would warn appropriate state and local officials if major problems require immediate repairs and would indicate how the owner plans to accomplish the needed repairs, and indicate if evacuation of persons in areas downstream of the dam may be necessary.

5) Maintenance Requirements

As a condition of each permit, dam owners shall submit a maintenance plan detailing the procedures and schedules to be followed to maintain the dam and its appurtenances in a reasonable state of repair. The maintenance plan shall include but not be limited to the following:

A) Class I and II Dams

The dam owner shall retain an engineer or other qualified personnel to make an initial inspection and report and subsequent inspections and reports as required by this Part. The owner of a Class I dam shall submit the report annually on forms furnished by OWR. The owner of a Class II dam shall submit the report every three years on forms furnished by OWR. In the intervals between the engineer or other qualified personnel reports on Class II dams, the owner shall file with OWR an annual statement on forms furnished by OWR stating that he is maintaining the dam in accordance with the maintenance plan prepared by his engineer or other qualified personnel and indicating any change in land use which may have occurred in the 100-year flood plain within the previously accepted limits downstream of the dam. The reports shall outline modifications made to the dam, any deficiencies found, detail the remedial measures necessary, and the method and time the owner will use to correct the deficiencies found. The dam owner may be required to provide additional inspections and

reports by an engineer or other qualified personnel, following unusual storms or seismic events; provided such inspection procedures are required as a part of the maintenance plan approved by OWR in issuing a permit. A sketch showing land use in the flood plain downstream of the dam shall be included in the reports. The extent of downstream land use to be reported is dependent upon factors such as slope and width of the 100-year flood plain and the density and intensity of downstream development. The extent downstream will not exceed 2 miles unless otherwise indicated by OWR. The owner may provide information for review by OWR indicating that an extent downstream which is shorter than 2 miles may be appropriate.

B) Class III Dams

The owner of a new Class III dam or owner of an existing Class III dam qualifying under the provisions of Section 3702.30 (relating to the major modification of existing Class III dams), shall retain an engineer or other qualified personnel to make an initial inspection and report and subsequent inspections and reports on a 5-year interval, in accordance with this Part. The dam owner shall submit to OWR on forms furnished by OWR the engineer's initial report and subsequent fifth year reports. The reports shall include a description of flood plain land use downstream of the dam. In the intervals between the engineer's reports, the owner shall file with OWR an annual statement on forms furnished by OWR stating that he is maintaining the dam in accordance with the maintenance plan prepared by his engineer or other qualified personnel and indicating any change in land use downstream of the dam. The extent of downstream land use to be reported is dependent upon factors such as slope and width of the 100-year flood plain and the density and intensity of downstream development. The extent downstream will not exceed 2 miles unless otherwise indicated by OWR.

6) Financial Responsibility of Owner

- A) For Class I and II dams, the owner shall document that he has the financial capability to adequately maintain or breach his dam in a safe condition. This may be established by showing that the applicant has the resources and the authority to obtain funds in the amount required to safely breach the dam within 10 days of receipt of notice of the need to breach or repair. For public bodies, this may be done by showing taxing power or other revenue generating ability and passage of an appropriate ordinance or resolution indicating the authority to take such action if necessary. If the owner cannot adequately demonstrate this financial capability, OWR may require the applicant to post a performance bond. The amount of the bond will be that estimated by OWR as reasonably necessary to safely breach the dam in an environmentally sound manner if the condition of the dam becomes a threat to life or property. The owners shall notify OWR when each performance bond has been renewed or extended in time.
 - B) Except in emergencies, should the cost of repair to place the dam in a safe condition be less than the cost of breaching, the performance bond may be used to pay for repair, rather than breach of the dam.
- 7) Other Requirements
- A) The owner shall grant the State the right of access to inspect the dam site and immediate vicinity before, during and after construction and for the life of the dam and appurtenances. Except under emergency conditions, such as when the dam is in imminent danger of failure or is in the process of failing, the State shall notify the owner at least 10 days in advance of any inspection.
 - B) For Class I and II dams, the owner shall notify OWR prior to initiating foundation preparations, including cut-off trench excavation.
 - C) For Class I and II dams, OWR will require the owner to have continuous inspection during construction. The construction shall be under the direction of an engineer, or other

qualified personnel. For Class III dams, OWR may require the owner to have continuous inspection during construction if foundation conditions have not been completely determined or if the dam has been designed with minimal factors of safety.

- D) For Class I and II dams - prior to commencing filling operations, or refilling operations after a drawdown, the applicant shall request OWR inspection of the dam, and must receive authority from OWR before commencing filling. When drawdowns are performed on a frequent basis as a part of the approved operation plan, the authority is not necessary.
- E) If OWR has not acted to grant or deny the authorization to fill within 30 days after receipt of request, the owner may proceed with filling or refilling operations.
- F) For all new dams, or for major modifications to existing dams, the dam owner shall
 - i) own or have permanent flood easements for all land that will be inundated in the reservoir up to the proposed 100-year frequency flood pool elevation, or
 - ii) submit hydraulic computations showing that, for floods up to the 100-year frequency flood, the pool elevation will not be increased above existing conditions.

(Source: Amended at 11 Ill. Reg. 1941, effective January 13, 1987)

Section 3702.50 Requirements for Approval of Permits for Removal of Dams

- a) Dependent upon the size, height, reservoir impounding capacity, upstream and downstream channel conditions, existing reservoir sediment deposits, degree of hazard in case of failure, as well as any other considerations which might be peculiar to a particular dam, the following OWR requirements shall be met unless the applicant establishes that one or more specific requirements for a permit to remove a dam are not applicable.
- b) A reasonable method to accomplish the following requirements will be accepted. It is strongly recommended that applicants contact OWR prior to initiation of studies and at any time during the development of the permit application if questions should arise.
 - 1) Reservoir Dewatering - The reservoir shall be dewatered with a method and timing such that the downstream channel shall not overflow to a degree to cause damage.
 - 2) Effecting Breach - A breach shall be made in such a manner as to be safe under all reasonably anticipated storm events.
 - 3) Size of Breach - The waterway cross sectional area of the final breach shall be sufficient to at least pass the 100-year frequency flood with negligible backwater effect.
 - 4) Control of Erosion at Site of Breach During and After Breaching Operations - Erosion of the dam embankment and adjacent area shall be controlled during and after breaching operations by proper breach procedure, use of appropriate structural measures, and necessary maintenance measures thereafter.
 - 5) Downstream Channel Impacts - Effects of the breach on the downstream channel shall be assessed. Increases in water levels downstream of the breach over that which occurred prior to construction of the dam shall be negligible unless the owner can show that no damage results from such increases. If increases in water levels are not negligible or if damage can result from the breach, OWR will require the owner to mitigate such damages.

- 6) Restoration of Original Channel Upstream of Breach - The original channel shall be restored, or an alternate channel shall be required to provide flows approximating the original flow regime (restoration to the extent possible, of the channel and stream flows to original conditions prior to construction of the dam) through the bed of the reservoir from the breach to the upstream end of the area impacted by the reservoir.
- 7) Control of Sediment Deposits in Reservoir - Measures shall be undertaken to minimize movement of reservoir sediment deposits through the breach.
- 8) Restoration of Reservoir Lake Bed - The bed of the reservoir within the 100-year flood plain shall be restored to a condition whereby it can serve a reasonable flood plain use.
- 9) Plan for Maintenance - A plan for providing regular maintenance of the breach, outlet channel, inlet channel, and reservoir bed will be required by OWR, for the period of time necessary to establish plant cover or other erosion and sedimentation control.

(Source: Amended at 11 Ill. Reg. 1941, effective January 13, 1987)

Section 3702.60 Application for Permit to Construct New Dams or Make Major Modifications to Existing Dams-Contents

Application for a permit shall be made on forms provided by OWR. The application shall include as a minimum:

- a) Construction plans and documents, sealed, signed and dated by an engineer stating that the dam design and construction documents have been prepared under his personal supervision and are in conformance with this Part.
- b) For all Class I and II dams and for Class III dams where the dam height multiplied by the impounding capacity is greater than 300, computations for structural and geotechnical design of the dam.
- c) Computations for the hydrologic and hydraulic design of the spillway or combination of the spillway and the outlet works.
- d) For Class I and II dams, computations for the design flood and the 100-year frequency flood routed through the design spillway system.
- e) For Class I and II dams, computations for the dam breach wave analysis for downstream impacts.
- f) Computations of length of time required to dewater the reservoir, together with a detailed plan indicating methods of dewatering for normal and emergency conditions.
- g) Computations for the design of minimum dam height including freeboard.
- h) Sketch showing flood plain land use downstream of the dam.
- i) Computations for the design of the energy dissipating structures, including an assessment of the impact of the design discharges and other critical flows in downstream channels immediately below the energy dissipators.
- j) Time schedule for the construction of the dam (applicant must notify OWR immediately if any advances in the schedule are made).
- k) Agreement of the applicant to provide as-built plans and specifications upon completion of construction. These plans and specifications shall be signed by the engineer

or other qualified personnel who was responsible for inspection during the construction.

- l) For all Class I and II dams, a detailed plan for inspection of the dam and its appurtenances during construction, immediately after completion, at frequent intervals during initial filling of the reservoir, and for a one-year period immediately following completion of the filling. Inspections during the initial filling shall be conducted at least every 30 days. Additional inspections will be required after major storms or seismic events. Following a seismic event, OWR will consult with IEMA and university seismic experts to determine when additional inspections will be required.
- m) For all Class I and II dams and for Class III dams where the height multiplied by impounding capacity is greater than 300, authorization for the State, in the event that a dam is found by OWR to be in imminent danger of failure, to enter upon the dam property if necessary to prevent or alleviate dam breach damage pursuant to Section 3702.190, and agreement by applicant to compensate the State for costs reasonably incurred by such emergency action.
- n) Right of access authorization for the State to inspect the dam site and immediate vicinity before, during and after construction and for the life of the dam and its appurtenances. OWR shall notify the owner 10 days in advance of any inspection other than an emergency inspection.
- o) For Class I and II dams, an operational plan.
- p) For all Class I and II dams and for Class III dams where the dam height multiplied by the impounding capacity is greater than 300, a maintenance plan.
- q) For Class I and II dams, a financial responsibility statement.
- r) Copies of ownership documents or flood easement agreements for all land that will be inundated in the reservoir up to the 100-year frequency flood pool elevation, or hydraulic computations showing no increase in the flood pool elevations above existing conditions for floods up to the 100-year frequency flood.

(Source: Amended at 11 Ill. Reg. 1941, effective January 13, 1987)

Section 3702.70 Application for Permit to Remove Dams-Contents

Application for a permit to remove a dam shall be made on forms provided by OWR. The application shall include as a minimum:

- a) Plans and documents, sealed, signed and dated by an engineer stating that the design documents have been prepared under his personal supervision and are in conformance with this Part.
- b) Computations for design of the method and timing for dewatering the reservoir.
- c) Design plans and computations to effect the breach including size of breach, shape of breach and disposal of spoil material.
- d) Plans and computations for controlling erosion at the site of the breach during and after the breach has been effected.
- e) Computations detailing the effects of the breach on the channel downstream of the breach.
- f) Plans and computations for restoring the channel upstream of the breach.
- g) Plans and computations for control of sediment deposits in the reservoir.
- h) Plans for the restoration of the bed of the reservoir.
- i) Plans for maintenance of the breach, downstream and upstream channels, and reservoir bed.
- j) A time schedule for initiation and completion of all phases of the removal of the dam operation.
- k) Agreement of the applicant to provide as-built plans upon completion of removal. These plans shall be signed by the engineer or other qualified personnel who was responsible for inspection during the removal.
- l) Right of access authorization for the State to inspect the breach site and vicinity, before, during and after breaching operations and until restoration of the stream and impacted area is complete.

(Source: Amended at 11 Ill. Reg. 1941, effective January 13, 1987)

Section 3702.80 Dam Breach Wave Advisories

For certain Class I or Class II dams which, because of physical conditions or density or downstream land use, would be a threat to life and property if failure occurred, OWR may file a dam breach wave advisory with the appropriate county clerk outlining the probable extent and impact of a dam failure on the affected downstream area.

Section 3702.90 Datum For Dam Elevations

All elevations for Class I and Class II dams shall be on the National Geodetic Vertical Datum (same as mean sea level (MSL) 1929 adj.). Where possible, Class III dams shall also be on the NGVD datum. (Datum means the level surface used for reference in determining the elevations of features of a dam)

Section 3702.100 Permits Not Transferable

Permits issued pursuant to this Part are not transferable. Upon transfer of ownership of a dam whether previously permitted or not, the new owner must immediately apply for a permit under his own name. The application for permit may incorporate by reference all information from the previous permit that is determined by OWR to be pertinent to the new permit.

(Source: Amended at 11 Ill. Reg. 1941, effective January 13, 1987)

Section 3702.110 Acceptance Of Other Agency Permits

If an applicant demonstrates to OWR that he has met the requirements of another state or federal agency's permit for a new dam or major modifications to an existing dam, and that the other permit requirements are substantially equivalent to corresponding requirements under this Part, then submittal of the other permit with the completed Application for Permit form will be considered sufficient evidence that the corresponding requirements of this Part have been met.

(Source: Amended at 11 Ill. Reg. 1941, effective January 13, 1987)

Section 3702.120 Use Of Joint Permit Forms

OWR may enter into agreements with federal or state agencies having appropriate permit authority for construction of dams, to develop a single Application for Permit form to satisfy the requirements of each of the concerned agencies.

Section 3702.130 Permit Application

a) Notice and Comment

- 1) Upon receipt of a complete application, OWR shall prepare and distribute a public notice of the application, allowing a period of twenty-one (21) days for the submission of comments. OWR may extend the comment period upon written request showing just cause. The extension shall not exceed fifteen (15) days.
- 2) Public notices shall be released as a news item through the Department's Office of Public Affairs, and shall be mailed to the following:
 - A) Adjacent upstream and downstream property owners.
 - B) Interested state and federal agencies.
 - C) Area legislators.
 - D) Local officials.
 - E) Interested groups and organizations.
- 3) Failure to publish this notice will not affect the substantive or procedural rights of any affected party.
- 4) If relevant objections are received in response to the public notice, they shall be forwarded to the applicant suggesting that a mutually satisfactory resolution be achieved if possible. If a resolution cannot be achieved, the applicant shall advise OWR of his views regarding the validity of the statements contained in the objection. OWR will then evaluate the objections and the applicant's response and determine the appropriate resolution.

b) Public Hearing

- 1) If the application is for a new dam, or for major modification to an existing dam, OWR may hold a public hearing to take evidence concerning the proposed project. A public hearing pursuant to Section 3702.170 shall be held in addition to the notice and comment procedures outlined in the prior subsection (Section 3702.130(a)) when OWR determines that such a hearing is in the public

interest, or believes it to be the most appropriate means of receiving information concerning the application.

- 2) If the application is for an existing dam which requires no major modifications, OWR will not hold a hearing unless OWR determines that it is in the public interest to do so.

Section 3702.140 Permit Approval

- a) The Department shall either approve or deny an application for permit within ninety (90) days of the receipt of the complete application (or one-hundred and fifty (150) days in the event a hearing is held) unless a longer time period is agreed to in writing by the applicant. If the Department has neither approved nor denied the application within these time limits, the application will be deemed approved. The time limit for final Department action on a permit application shall be computed from the date on which the Department has received all information required in Sections 3702.40 and 3702.60 or 3702.50 and 3702.70. The applicant will be advised within forty-five (45) days of the receipt of the application if additional data are required. If additional data or revised plans are required by the Department, the time between the request and the receipt of the requested material will not be counted in these time periods. Also, the time required for resolution of relevant objections shall not be counted in these time periods.
- b) OWR may give emergency approval of construction if the applicant agrees to make all modifications, at the applicant's expense, which are reasonably required by OWR, upon completion of a detailed review and expiration of the public comment period. (An example of a situation in which emergency approval might be granted is: If a dam was severely deteriorated, and immediate repairs were necessary to prevent dam failure.)

(Source: Amended at 11 Ill. Reg. 1941, effective January 13, 1987)

Section 3702.150 Enforcement, Administrative Order, and Judicial Action

Before requiring major modifications or breach of an existing dam, or engineering studies and surveys necessary to determine the proper design for any such remedial measures, OWR shall provide notice and opportunity for a hearing. The Director shall require breach or modification of an existing dam only upon a determination that the dam constitutes a serious threat to life or a threat of substantial property damage. If the Director finds that major modification or removal is required, the Director will issue an order to the dam owner requiring that he take the appropriate corrective action. The order may provide that all existing OWR permits applicable to the dam be revoked. If a dam owner fails to comply with this Part or conditions of a permit issued under this Part, or an order issued under this Part, the Director may seek appropriate judicial action to obtain compliance.

(Source: Amended at 11 Ill. Reg. 1941, effective January 13, 1987)

Section 3702.160 Dam Owner Non-Compliance

- a) OWR will review all instances of alleged non-compliance with this Part or conditions of a permit or order issued under this Part. OWR will provide the owner reasonable opportunity to submit all relevant information concerning the issue of compliance.
- b) If OWR finds non-compliance, OWR may issue a notice of non-compliance to the dam owner, specifying the nature of the non-compliance, the nature of the dam deficiencies if known, and the hazards which may result if known. OWR may issue a notice of non-compliance if the non-compliance is not a substantial risk to human life, and that continued non-compliance is not likely to result in a hazard to human life.
- c) OWR may request that the Director hold a hearing pursuant to Section 3702.170 on the issue of non-compliance, if it finds that there are issues of fact or law for which a hearing is the most appropriate means of receiving information.
- d) If the Director finds non-compliance, the Director may issue an order, and if necessary seek judicial enforcement, pursuant to Section 3702.150.
- e) OWR will send orders issued by the Director and notices of significant non-compliance, related dam deficiencies, and the hazards which may result, to: the appropriate officials of the affected city or county, the State's Attorney of the county in which the dam is located, IEMA, and all known downstream property owners and residents who might be threatened as a result of the deficiencies.
- f) OWR will also provide general information concerning the defective dam or other non-compliance, as appropriate, to concerned officials, property owners and users, and other interested persons.

(Source: Amended at 11 Ill. Reg. 1941, effective January 13, 1987)

Section 3702.170 Permit, Enforcement, Dam Classification, Existing Dam Spillway Design Variation, and Non-Compliance Hearing Procedures

Permit, enforcement, dam classification, existing dam spillway design variation and non-compliance hearings shall be held in accordance with the procedures established in contested cases under Article 10 of the Illinois Administrative Procedure Act. In addition, for all hearings held by the Director or OWR under this section, the following procedures shall apply:

- a) All affected parties shall be afforded an opportunity for hearing after reasonable notice is served personally or by certified or registered mail upon the parties or their agents.
- b) The Director may issue subpoenas for the attendance of witnesses or to produce books and papers.
- c) The record of hearing shall include verbatim all written testimony and evidence, as well as all oral proceedings recorded stenographically or otherwise.
- d) A final decision or order shall be in writing including findings and the rationale for the decision; and the parties or their agents shall be notified personally or by registered or certified mail of the decision.
- e) A decision or order to require breaching or modification of a dam shall include:
 - 1) A detailed and specific list of defects discovered by inspection of the dam and
 - 2) A statement of the requirements with which the owner must comply pursuant to this Part.
- f) In any hearing held pursuant to Section 3702.30(d) of this Part, the burden of proof shall lie with the party requesting the hearing. In any hearing held pursuant to Section 3702.150 or 3702.160, the burden of proof shall lie with OWR.

(Source: Amended at 11 Ill. Reg. 1941, effective January 13, 1987)

Section 3702.180 Assistance Concerning Non-Complying Dams

OWR will cooperate with the Illinois Emergency Management Agency to provide assistance to local officials or property owners who may wish to institute appropriate emergency procedures for downstream areas threatened with damage from failure of a non-complying dam.

Section 3702.190 Emergency Procedures

- a) In the event a dam constitutes a serious threat to life or a threat of substantial property damage and is found to be in immediate danger of failure, OWR shall give the owner proper notice, providing the owner is known, is immediately available, and is competent, to take those actions necessary to prevent or alleviate threat to life and property downstream of the dam.
- b) The actions may include, but are not limited to lowering normal pool level, complete dewatering, breaching of the dam, and initiating a surveillance program for dam and lake conditions. The action required of the dam owner may also include, in cooperation with appropriate state and local officials, initiating emergency procedures for evacuation of downstream areas threatened with breach damage. OWR may hold public meetings in the area and issue press releases, when these are the most expedient means for informing the concerned persons and officials of the hazard involved, or if public meetings are necessary to alleviate unfounded fears as to the severity of the hazard involved.
- c) If the dam owner fails to take these actions in a timely manner, or if OWR finds that because of imminent hazard to public safety, notice and opportunity for hearing and for appropriate action by the dam owner are not feasible, then the State may pursue appropriate emergency administrative or court action to deal with the emergency.

Section 3702.200 Standard Permit Conditions

- a) Permits issued under this Part shall be subject to the following standard conditions:
- 1) This permit is granted in accordance with the Rivers, Lakes and Streams Act [615 ILCS 5].
 - 2) This permit does not convey title to the permittee or recognize title of the permittee to any submerged or other lands, and furthermore, does not convey, lease, provide any right or rights of occupancy or use of the public or private property on which the project or any part thereof will be located, or otherwise grant to the permittee any right or interest in or to the property, whether the property is owned or possessed by the State of Illinois or by any private or public party or parties.
 - 3) This permit does not release the permittee from liability for damage to persons or property resulting from the work covered by this permit, and does not authorize any injury to private property or invasion of private rights.
 - 4) This permit does not relieve the permittee of the responsibility to obtain other federal, State or local authorizations required for the construction of the permitted activity; and if the permittee is required by law to obtain approval from any federal or other State agency to do the work, this permit is not effective until the federal and State approvals are obtained.
 - 5) The permittee shall, at the permittee's own expense, remove all temporary piling cofferdams, false work, and material incidental to the construction of the project, from the floodway, river, stream or lake in which the work is done. If the permittee fails to remove such structures or materials, the State may have removal made at the expense of the permittee. If the construction is on a public body of water and if future need for public navigation or public interests of any character, by the State or federal government, necessitates changes in any part of the structure or structures, such changes shall be made by and at the expense of the permittee or the permittee's successors as required by the Department of Natural Resources or other properly constituted agency,

within sixty (60) days from receipt of written notice of the necessity from the Department or other agency, unless a longer period of time is specifically authorized.

- 6) The execution and details of the work authorized shall be subject to the supervision and approval of the Department. Department personnel shall have right of access to accomplish this purpose.
 - 7) The permittee shall file with the Department a properly executed acceptance of all terms and conditions of the permit within sixty (60) days of receipt of the permit; however, starting work on the construction authorized will be considered full acceptance by the permittee of the terms and conditions of the permit.
 - 8) The Department in issuing this permit has relied upon the statements and representations made by the permittee; if any statement or representation made by the permittee is found to be false, the permit may be revoked at the option of the Department; and when a permit is revoked all rights of the permittee under the permit are voided.
 - 9) If the project authorized by this permit is located in or along Lake Michigan or a meandered lake, the permittee and the permittee's successors shall make no claim whatsoever to any interest in any accretions caused by the project.
 - 10) In issuing this permit, the Department does not approve the adequacy of the design or structural strength of the structure or improvement.
 - 11) Noncompliance with the conditions of this permit will be considered grounds for revocation.
- b) In addition, the Department shall impose special conditions, as required to assure compliance with this Part. Special conditions of a permit are those conditions of a permit not included within the standard conditions for all permits but necessary to assure compliance with 17 Ill. Adm. Code 3702. Typical examples include a) setting limits for soil testing results that will be affected by site conditions encountered during construction, b) preventing certain construction activities from taking place without approval of specific data not available at the time of permit issuance, or

- c) providing time limits for construction activities to be completed.

(Source: Added at 11 Ill. Reg. 1941, effective January 13, 1987)